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Tuna Newsletter

National Marine Fisheries Service
- Southwest Region
- Southwest Fisheries Science Center

August 1996 **Issue 122**

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U.S. TUNA STATISTICS

Editor's note: The following articles were prepared by NMFS personnel from data and information gathered from sources in the U.S. tuna industry and government. The U.S. tuna canning industry is composed of four companies with six canneries based in the U.S., that is, two canneries in each of the three canning locations of American Samoa, California and Puerto Rico. Under the confidentiality rules that guide the dissemination of information from business sources by the NMFS, data from at least three companies must be combined for publication. Therefore, cannery receipts for all U.S. canning locations are combined for presentation in the Tuna Newsletter.

U.S. CANNED TUNA INDUSTRY HIGHLIGHTS, FIRST QUARTER 1996

Total receipts of tuna by U.S. canners during the first quarter of 1996 (January-March) decreased by 28% to the equivalent of 101,400 short tons (st) of whole fish (round weight), compared to the first quarter of 1995 (Table 1). The principal species received was skipjack tuna with 48% of the total, followed by albacore and yellowfin tuna with 27% and 25% of the total, respectively. Yellowfin tuna and albacore receipts were up by 30% and 9%, respectively, for the quarter, while skipjack tuna receipts were down by 50%.

Although the vast majority of tuna received by U.S. canners is whole fish, some quantity is received as loins or gilled-and-gutted. Receipts of tuna loins for the first quarter of 1996 were down by 59%. (Loins and gilled-and-gutted receipts are converted to round weight receipts by factors of 2.25 and 1.11, respectively. For this article, unconverted receipts are used unless otherwise stated.)

Table 1. Total U.S. cannery receipts (st) by species for the first quarters of 1995 and 1996. Totals may not add due to rounding.

Jan-Mar	Type	Albacore	Skipjack	Yellowfin[1]	TOTAL
1995	ROUND	25,000	58,300	15,200	98,500
	GILLED & GUTTED	0	0	300	300
	LOIN	0	16,900	1,800	18,700
	TOTAL (as received)	25,000	75,100	17,400	117,500
	TOTAL (round weight)[2]	25,000	96,200	19,700	141,000
1996	ROUND	27,300	37,100	19,200	83,700
	GILLED & GUTTED	*	0	500	500
	LOIN	0	5,000	2,600	7,600
	TOTAL (as received)	27,300	42,100	22,300	91,800
	TOTAL (round weight)[2]	27,300	48,400	25,700	101,400

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

[2]Converted to round weight by using factors of 1.11 for gilled-and-gutted and 2.25 for loins.

Table 2. U.S. cannery receipts (st) of domestic and imported tuna by species for the first quarters of 1995, 1996 and the recent (1991-95) first quarter averages. Totals may not add due to rounding.

Jan-Mar	Source	Albacore	Skipjack	Yellowfin[1]	TOTAL
		TOTAL CANNERY RECEIPTS (ALL LOCATIONS)			
1995	DOMESTIC	2,300	41,300	8,500	52,000
	IMPORTED	22,800	33,900	8,900	65,500
	TOTAL	25,000	75,100	17,400	117,500
1996	DOMESTIC	1,500	25,800	11,700	38,900
	IMPORTED	25,900	16,400	10,600	52,900
	TOTAL	27,300	42,100	22,300	91,800
1991-95 Average	DOMESTIC	1,900	35,000	10,100	47,000
	IMPORTED	19,500	22,400	10,700	52,600
	TOTAL	21,300	57,400	20,900	99,600

[1]May include a small amount of bigeye tuna.

Table 3. U.S. cannery imports (st) of tuna by species and source (flag of catcher vessel) for the first quarter of 1996. Totals for the first quarter of 1995 are given for comparison. Note that the flag of the catcher vessel does not necessarily reflect the country of export or point of shipment. Totals may not add due to rounding.

VESSEL FLAG	1996				1995
	Albacore	Skipjack	Yellowfin[1]	TOTAL	TOTAL
BELIZE	0	500	300	800	0
CANADA	100	0	0	100	*
COLOMBIA	0	300	0	300	0
ECUADOR	*	1,800	1,400	3,300	4,900
FSM	0	100	*	200	2,000
FIJI	100	0	0	100	0
FRANCE	300	3,800	4,300	8,400	8,000
HONDURAS	100	0	0	100	200
JAPAN	3,100	0	0	3,100	6,400
MEXICO	0	400	*	400	0
NEW ZEALAND	3,100	0	*	3,100	2,000
PANAMA	1,200	900	800	2,900	300
PORTUGAL	1,700	400	0	2,100	1,100
SOUTH AFRICA	2,200	0	0	2,200	3,600
SOUTH KOREA	500	2,000	1,600	4,100	8,800
SPAIN	700	1,600	400	2,700	500
SRI LANKA	100	0	0	100	0
TAIWAN	12,500	2,800	1,000	16,300	23,200
TONGA	100	0	0	100	100
USA	0	600	300	800	1,600
VANUATU	100	1,000	500	1,600	200
VENEZUELA	0	100	0	100	500
WESTERN SAMOA	100	0	0	100	0
OTHER	100	*	*	100	2,100
TOTAL	25,900	16,400	10,600	52,900	65,500

*Less than 100 st reported for this category.
[1]May include a small amount of bigeye tuna.

Domestic deliveries to U.S. canners for the first quarter of 1996 decreased by 25%, and imported deliveries decreased by 19% (Table 2). Skipjack tuna was easily the largest component of all domestic deliveries at 25,800 st. Domestic deliveries lagged imports by 14,000 st.

Albacore was the leading import for the first quarter of 1996 at 25,900 st, followed by skipjack and yellowfin tuna at 16,400 st and 10,600 st, respectively (Table 3). The leading supplier was Taiwan, with 31% of the import market, followed by France and South Korea with 16% and 8% of the market, respectively.

The western Pacific Ocean was the source of 63% of the tuna received by U.S. canners during the first quarter of 1996 (Table 4). The next greatest source was the eastern Atlantic Ocean which accounted for 13% of the tuna received by U.S. canners.

U.S. imports of canned tuna packed in water totaled 40,400 st for the first quarter of 1996, down 3% from 1995.

U.S. TUNA FISHERIES UPDATE

EASTERN PACIFIC TROPICAL TUNA FISHERY

During the period January through June 1996, nine U.S. tuna purse seiners participated in the eastern tropical Pacific tuna fishery and caught an estimated 9,000 metric tons (mt) of yellowfin and bigeye tuna and 6,000 mt of skipjack tuna (Figure 1). The combined yellowfin and bigeye tuna catch was up 2% from the 1995 catch for the same period while the skipjack tuna catch was down 3%.

During this same period, the surface fleets of all nations fishing in the eastern Pacific Ocean caught an estimated 157,700 mt of yellowfin and bigeye tuna and 48,500 mt of

Table 4. Receipts (st) of tuna by U.S. canneries by species and area of capture for the first quarters of 1995 and 1996. Totals may not add due to rounding.

SOURCE	Albacore		Skipjack		Yellowfin[1]	
	1995	1996	1995	1996	1995	1996
E. ATLANTIC OCEAN						
DOMESTIC	0	0	0	0	0	0
IMPORTED	6,500	7,500	200	3,100	0	1,300
TOTAL	6,500	7,500	200	3,100	0	1,300
W. ATLANTIC OCEAN						
DOMESTIC	0	0	0	0	0	0
IMPORTED	1,300	1,000	300	0	*	0
TOTAL	1,300	1,000	300	0	*	0
E. PACIFIC OCEAN						
DOMESTIC	*	0	1,300	2,000	2,900	2,100
IMPORTED	0	200	5,600	4,100	1,200	2,300
TOTAL	*	200	6,900	6,100	4,100	4,400
W. PACIFIC OCEAN						
DOMESTIC	2,300	1,500	40,000	23,800	5,600	9,600
IMPORTED	11,900	14,200	20,900	5,600	5,800	3,100
TOTAL	14,100	15,700	60,900	29,300	11,400	12,700
INDIAN OCEAN						
DOMESTIC	0	0	0	0	0	0
IMPORTED	3,100	3,000	6,900	3,600	1,900	4,000
TOTAL	3,100	3,000	6,900	3,600	1,900	4,000

*Less than 100 st reported for this category.

[1]May include a small amount of bigeye tuna.

skipjack tuna. The leading nation was Mexico with 39% of the total catch, followed by Venezuela and Ecuador with 18% and 14% of the catch, respectively. The U.S. fleet accounted for 7% of the tuna catch.

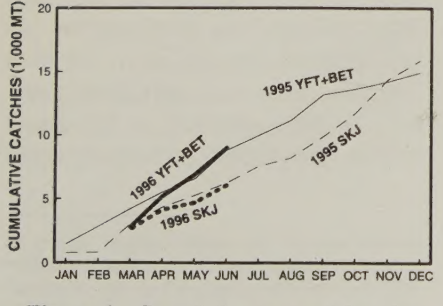


Figure 1. Cumulative tuna catches, by month, for the U.S. eastern tropical Pacific purse seine fishery, 1995 and 1996. Note that data are not available for the first two months of 1996.

WESTERN PACIFIC TROPICAL TUNA FISHERY

For the period January through March 1996, U.S. tuna purse seiners fishing in the western tropical Pacific under the South Pacific Tuna Treaty landed an estimated 20,600 mt of skipjack tuna and 9,400 mt of yellowfin and bigeye tuna (Figure 2). The skipjack tuna landings were down 57% and the combined yellowfin and bigeye tuna landings were up 141% from the 1995 landings for the same period. Thirty-one vessels have landed tuna from 37 trips in 1996 compared to 40 vessels and 52 trips in 1995. *(Report provided by Doug Prescott, NMFS Southwest Fisheries Science Center, La Jolla, CA)*

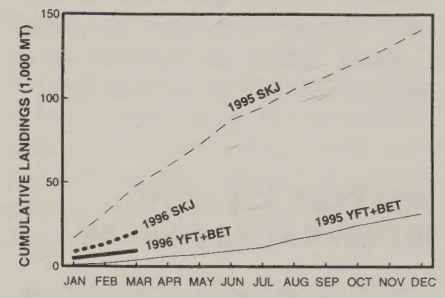


Figure 2. Cumulative tuna landings, by month, for the U.S. western tropical Pacific purse seine fishery, 1995 and 1996.

NORTHERN PACIFIC ALBACORE FISHERY

The 1996 U.S. North Pacific albacore troll season began in May in areas north of Midway Island. By late June, most trollers had offloaded their catch onto a transshipment vessel once and were still experiencing good catch rates (greater than 100 fish per day) between 160°E and the international date line. Total landings for the 1995 North Pacific season were 9,486 mt and the average catch rate was 49 fish per day. *(Report provided by John Childers, NMFS Southwest Fisheries Science Center, La Jolla, CA)*

SOUTHERN PACIFIC ALBACORE FISHERY

Approximately 40 troll vessels participated in the 1995-96 South Pacific albacore fishery which began in December 1995. The season ended in March, and total landings are approximately 1,225 mt. Fishing was not as productive as in 1994-95 when 21 vessels landed 2,319 mt. Fishermen reported "off color", warm water throughout much of the 1995-96 season. Length-frequency and logbook data from the 1995-96 season are being processed. Average catch per unit of effort (CPUE expressed as number of fish caught per day of fishing) values in past seasons have varied from 43 fish per day to 178 fish per day. The average CPUE for the

1994-95 season was 170 fish per day. *(Report provided by John Childers, NMFS Southwest Fisheries Science Center, La Jolla, CA)*

WESTERN ATLANTIC BLUEFIN TUNA FISHERY

With the exception of the *Angling (Trophy) Category*, the U.S. Atlantic bluefin tuna (ABT) season is generally off to a slow start. As of 16 July, 567 ABT had been harvested by federally permitted vessels under the 1996 quota. A summary of large medium and giant size class ABT landings is given in Table 5. The *Angling (Trophy) Category* was closed in March after the North Carolina winter fishery.

New regulations governing the Atlantic tuna fisheries went into effect on June 18, 1996. These regulatory amendments are necessary to implement the ICCAT recommendations regarding fishing quotas for ABT as required by the Atlantic Tunas Convention Act and to achieve domestic management objectives. A summary of the amendments follows.

Atlantic bluefin tuna commercial fishing category quotas for the 1996 fishing year are *General Category* (541 mt), *Harpoon Boat Category* (53 mt), *Incidental Category* (110 mt), *Purse Seine Category* (251 mt), *Angling (Trophy) Category* (5 mt), and *Reserve* (108 mt).

The *Incidental Category* is subdivided as follows: 109 mt for longline vessels, of which no more than 86 mt may be taken south of 34°00' north latitude; and 1 mt for vessels taking ABT incidental to fishing with other authorized gear.

General Category effort controls are implemented by distributing percentages of a modified *General Category* quota of 531 mt over certain months. (Ten mt are subtracted from the overall quota of 541 mt and reserved for the New York Bight fishery in October). The percentage distributions are as follows: 25% (133 mt) for June and July; 35% (186 mt) for August; 30% (159 mt) for September, and 10% (53 mt) for October through December. In addition, from mid-July to mid-September, daily closures from Sunday through Tuesday (with some exceptions to allow for Japanese holidays) are implemented to lengthen the fishing season.

Purse Seine Category vessels may now transfer, in whole or in part, individual purse seine quota allocations but only to another purse seine vessel and with written notice to NMFS three days in advance of landing any bluefin tuna transferred from another purse seiner.

To facilitate enforcement and reduce problems with misidentification of tunas, the yellowfin tuna and bigeye tuna minimum size limits are increased to 27 inches to equal the current minimum size of bluefin tuna.

All owners/operators of vessels (commercial, charter/headboat or recreational) harvesting regulated Atlantic tunas and all fish dealers must obtain an Atlantic Tunas Permit. Call (508) 281-9370 or write to NMFS Permit Division, One Blackburn Drive, Gloucester, MA 01930, for permit applications.

The NMFS Highly Migratory Species (HMS) Management Division has available a 24-hour telephone information line for news and catch reports concerning Atlantic tunas and other large pelagics. Call (301) 713-1279 or (508) 281-9305. This HMS information line is updated Monday through Friday. *(Report provided by Mark Murray-Brown, NMFS Northeast Region, Gloucester, MA)*

Table 5. U.S. landings of Atlantic large medium and giant bluefin tuna for 1996 as of July 16, 1996.

Category	Number of Fish	Average Wt. (lbs.)	Gross Wt. (mt)	Quota (mt)
GENERAL	254	375	43.2	541
Handline	4	461	0.8	
Rod & Reel	233	373	39.4	
Harpoon	17	386	3.0	
HARPOON	80	365	13.2	53
INCIDENTAL	214	551	53.5	110
N. Longline	56	465	11.8	23
S. Longline	154	590	41.2	86
Other	4	239	0.4	1
PURSE SEINE	0	-	0.0	251
ANGLING*	19	355	3.1	5
RESERVE	0	-	0.0	108
TOTAL	567	439	113.0	1,068

*Recreational anglers are allowed 5 mt for trophy fish (73 inches) which cannot be sold.

REPORTS

Editor's note: Original reports are published as a service to subscribers and may not represent the views of the NMFS. Readers should contact the authors of reports for details, if needed.

RELATIVE ABUNDANCE OF YELLOWFIN TUNA DISTRIBUTIONS RELATIVE TO ENVIRONMENTAL FEATURES OBSERVED FROM SATELLITES

Sofia Ortega García[1] *and Salvador Lluch Cota*[2]

Remote sensing plays an important role in both the management and harvest of marine fisheries. The most frequently used data collected by remote sensors in support of operational fisheries oceanography are those providing information on the sea surface temperature and phytoplankton pigment concentration. These data are obtained from the Advanced Very High Resolution Radiometer (AVHRR) sensor on the NOAA series of weather satellites and the Nimbus-7 Coastal Zone Color Scanner (CZCS) sensor imagery.

Several studies of different species of tuna (albacore, bluefin tuna, yellowfin tuna) have shown that areas with the largest catches are often found close to thermal and color oceanic fronts, where important water properties such as salinity, temperature and nutrient concentration can change abruptly over short horizontal distances. Furthermore, as a consequence of the water properties distribution, phytoplankton (base of the trophic chain), zooplankton and nekton (tuna prey) abundances may also change significantly in these oceanic front regions.

The Gulf of Tehuantepec (Figure 3), which represents one of the most important yellowfin tuna fishing areas, is bounded on the north by the Isthmus of Tehuantepec, recognized as one of the three zones of the Central America mainland where altitude discontinuities exist. Because of the resulting orographic effects upon the winds, the Gulf becomes exposed to weather conditions from the Atlantic side of Central America. The winter weather is dominated by moderate to strong northerlies called *tehuanos*. These conditions occur typically from October through April, with a peak from November through February, when winds from the north are more frequent.

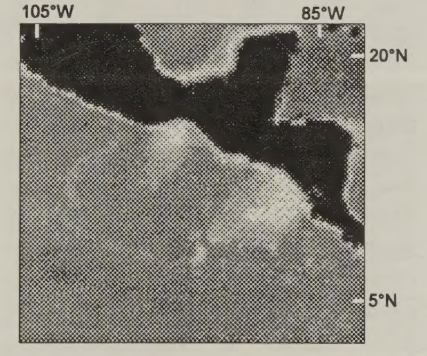


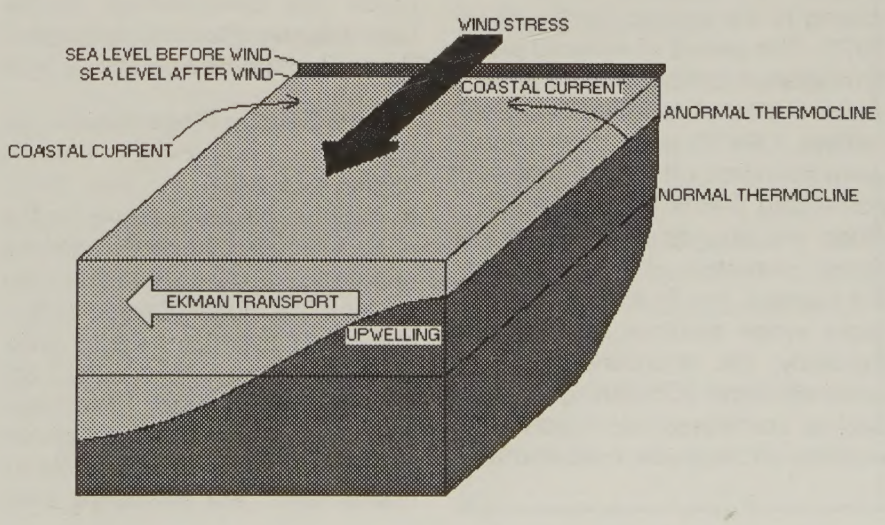
Figure 3 (above). The Gulf of Tehuantepec observed from the Coastal Zone Color Scanner

The Gulf of Tehuantepec lies in the region of the warmest surface temperatures in the eastern Pacific. But during the winter months, part of the region is at least one degree colder than surrounding areas, because of the wind effect that generates upwelling of subsurface waters (Figure 4).

During this upwelling season, it has been observed that concentrations of yellowfin tuna are present near the thermal fronts. However, the highest relative tuna abundance occurs four or five months after the time of maximum pigment concentration. This delay is assumed to be the time necessary for large amounts of zooplankton and nekton to build up and to become available to the population of feeding yellowfin tuna.

Recent advances in data acquisition and communications technologies, coupled with powerful analytical methodologies, suggest that the role of satellites and environmental oceanography for fisheries will expand considerably in the future.

Figure 4 (below). Upwelling process.



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[2]El Centro de Investigaciones Biológicas del Noroeste, Apartado Postal 128, La Paz, Baja California Sur 23000, México.

An abstract from a recently published paper written by a SWFSC scientist is presented in this space to announce its availability and to report results of tuna research conducted by Center staff.

RECENT SWFSC PUBLICATION: "Decadal variation in the trans-pacific migration of northern bluefin tuna (Thunnus thynnus) coherent with climate-induced change in prey abundance"

Jeffrey J. Polovina, Honolulu Laboratory, Southwest Fisheries Science Center, NMFS, 2570 Dole Street, Honolulu, Hawaii 96822-2396. *Published in Fisheries Oceanography, Volume 5, No. 2, pp. 114-119, 1996.*

Northern bluefin tuna, *Thunnus thynnus*, apparently spawn only in the western Pacific and a portion of the juveniles migrate to the eastern Pacific. During the past decade, catches of northern bluefin in the eastern Pacific have declined. One possible cause for this decline, proposed by bluefin stock assessment studies, is a decline in the proportion of bluefin that migrate out of the western Pacific. This hypothesis is examined with several indices of the relative abundance of bluefin tuna in the western and eastern Pacific. These indices suggest a decline in the proportion of bluefin migrating to the eastern Pacific since 1977. This period of reduced bluefin migration coincides with a period when a prey of bluefin, Japanese sardine, *Sardinops melanosticta*, were abundant off Japan. It is hypothesized that in years when sardines are abundant off Japan, a higher proportion of bluefin stay in the western Pacific compared with years when sardines are scarce. Currently, the abundance of sardines off Japan is declining. If this decline continues, this hypothesis predicts an increase in bluefin migrating north of Hawaii and into the eastern Pacific.

RECENT DEVELOPMENTS IN TUNA FISHERIES

Editor's note: The following news items, compiled from fishery trade and industry journals, newspapers and NMFS reports, are provided only as a service to our readers. The NMFS does not guarantee their accuracy.

UNITED STATES

Unicord Sells Bumble Bee--On July 11, 1996, Questor Partners Fund, L.P. (Southfield, MI), announced that it was acquiring the brand name and seafood business of Bumble Bee Seafoods, Inc. of San Diego, CA, from Unicord Public Co., Ltd, of Bangkok, Thailand. In addition, H.J. Heinz Co. (through its affiliate StarKist Foods, Inc., Pittsburgh, PA) will purchase Bumble Bee's tuna production facilities in Mayaguez, Puerto Rico, Santa Fe Springs, CA, and Manta, Ecuador. StarKist will co-pack tuna under the Bumble Bee label for a new Questor company being formed. Questor is rumored to have paid more than $200 million for this acquisition, with Heinz paying Questor between $50 million and $60 million. The U.S. Dept. of Justice must approve this consolidation of the tuna industry. (Reuters, Associated Press, Questor-Heinz press release)

Tuna Spotter Plane Debate Resurfaces-- Several New England bluefin tuna fishermen have asked that spotter planes be banned in the tuna "General Category", sparking new debate about the use of spotter planes in the multi-million dollar fishery. The fishermen have no problem with the use of planes under the "Purse Seiner" and "Harpoon" categories, which have used planes for years to spot schools of the lucrative tuna. But nowadays, even trollers are using spotter aircraft. The fishermen say the number of planes is overkill and causes the tuna quota to be used up too quickly. They have asked the NMFS to ban airplanes from *General Category* allocation, which is open to harpooners as well as trollers and other rod-and-reel fishermen. The East Coast Tuna Association, representing many of the spotter pilots and the fishermen that use them, has agreed to support a voluntary ban on planes in the trolling fishery. The pilots who do most of the flying for the trollers have agreed to halt the practice. (*National Fisherman*, July 1996)

New Swordfish Regulations-- On May 28, 1996, NMFS filed with the Office of the Federal Register a final rule to amend the regulations governing the Atlantic swordfish fishery to (1) reduce the annual total allowable catch (TAC) to 2,625 mt dressed weight via a split season (June 1 - May 31); (2) decrease the minimum size to 73 cm (29 inches), cleithrum to caudal keel measure; (3) eliminate the trip allowance for undersized fish; and (4) make reporting requirements consistent with the current logbook program. The intent of this action is to rebuild the swordfish resource while allowing harvest of swordfish consistent with recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT). The rule became effective June 4, 1996. (NMFS Office of Highly Migratory Species)

Heinz Acquires Italian Tuna Brand-- On May 21, 1996, the H.J. Heinz Company announced that it had acquired the Mareblu brand of tuna from Kraft General Foods. The Mareblu brand is sold exclusively in Italy and will be packed at Heinz's recently acquired India Ocean Tuna Limited cannery in the Republic of the Seychelles. (H.J. Heinz Co., press release)

U.S. Bluefin Tuna Farm--In late May 1996, the New England Aquarium opened the first U.S. bluefin

tuna farm off the coast of Virginia. Permits are being sought for a second farm off Cape Cod, Massachusetts. (Associated Press)

EASTERN PACIFIC

Scientist Hailed for Saving Dolphins-- Dolphin deaths in tuna fishing nets have declined by about 98% since 1986 in the eastern Pacific Ocean, and a San Diego marine scientist got a large share of the credit recently when he received San Diego Oceans Foundation's highest award. The annual Roger Revelle Perpetual Award was presented to James Joseph, director of the La Jolla-based Inter-American Tropical Tuna Commission since 1969. With Joseph at the helm, the eight-nation commission has mounted a sustained effort to reduce drowning deaths of dolphins in tuna fishing nets. Its success could help unlock a decades-old environmental dispute and end a U.S. embargo on tuna caught by boats from Mexico and other countries that look for the popular fish under dolphin schools. The decline in dolphin mortality has come through a variety of measures, including placement of observers on every tuna boat in the Eastern Pacific, newer equipment for some boats, better training of tuna crews and captains, special attention to individual boats with high-dolphin kills and other measures. (San Diego *Union-Tribune*, June 7, 1996)

WESTERN PACIFIC

P.N.G. Ends Licensing Program--The Papua New Guinea Government has decided to end the 40-year long practice of licensing foreign longliners to fish in the country's 200-mile EEZ. This decision has resulted in the already evident benefits enjoyed by the domestic fisheries sector. Previous studies had indicated that one local vessel alone can generate more export revenue in a year than was collected by the country in license and access fees for some 130 foreign boats. Apart from the boost in employment opportunities, greater investment in the domestic fisheries sector (about $6.65 million since 1995) will contribute to greater morale in the sector. (INFOFISH *Trade News*, June 3, 1996)

Philippine Canned Tuna-- First Dominion Prime Holdings Inc. has bought a 40% equity in Celebes Canning Corporation, thus increasing Dominion's total processing capacity in the Philippines to 280 mt of raw tuna per day. Dominion already owns two other canneries. Acquisition of a fourth tuna cannery is planned which will raise daily capacity up to 400 mt. Sales for 1996 are estimated at $80.77 million. Currently the Philippines exports about six million cases a year of which nearly 60% comes from First Dominion. With the new acquisition, the global market share for Dominion should rise to about 7%. (INFOFISH *Trade News*, June 3, 1996)

Japan-Kiribati Agreement--The Japanese tuna fishing agreement with Kiribati has been extended for two more years. Under the agreement, Japanese tuna longliners, pole-and-line vessels and purse seiners will continue to fish in Kiribati waters. (INFOFISH *Trade News*, April 15, 1996)

EASTERN ATLANTIC

Japan-Iceland Agreement--Following a top level meeting between the Japanese Ministry of Agriculture and Fisheries and the authorities in Iceland, Japan has been given access to fish for tuna in Icelandic waters in 1996. The arrangement allows two longliners from Japan to catch tuna in the Icelandic EEZ. Harvests will be closely monitored by the respective authority in Iceland. (INFOFISH *Trade News*, June 3, 1996)

UPCOMING TUNA MEETINGS

(Organizer; meeting type: sci=science, adm=administration)

- JUL 28-AUG 2. 2nd World Fisheries Congress. Brisbane, Australia.
- AUG 5-9. South Pacific Commission 26th RTMF. Noumea, New Caledonia. (SPC; adm)
- AUG 5-10. International Commission for the Conservation of Atlantic Tunas albacore workshop. Taipei, Taiwan. (ICCAT; sci)
- AUG 6-8. Inter-American Tropical Tuna Commission Annual Meeting. Costa Rica. (IATTC; adm)
- OCT 23-26. ICCAT Species Group meetings. Madrid, Spain. (ICCAT; sci)
- OCT 28-NOV 1. ICCAT Standing Committee on Research and Statistics meeting. Madrid, Spain. (ICCAT; sci)
- NOV 4-6. Getting Ahead of the Curve: A Symposium on Managing Highly Migratory Fish of the Pacific Ocean. Monterey, California. (National Coalition for Marine Conservation; adm)
- NOV 22-29. ICCAT Annual Commission meeting. San Sebastian, Spain. (ICCAT; adm)

1997

- MAR. 2nd International Symposium on Pacific Swordfish. Honolulu, Hawaii. (NMFS; sci)
- MAY 19-22. 48th International Tuna Conference. Lake Arrowhead, CA. (IATTC; sci)

WESTERN ATLANTIC

Pair Trawl Design Tested-- A new-design mid-water trawl which supposedly can be fished with "pinpoint accuracy" has been flume tank tested in Canada. It has been designed to catch tuna and squid, as well as herring and mackerel in shoal waters. Nordsea Ltd. of Dartmouth, Nova Scotia, Canada, conducted tests of a scale model of the new trawl in the Newfoundland flume tank, and commercial versions could be available soon. The project was conceived by top U.S. pair trawl captains John Riemer and Jim Thayer who collaborated with trawl designer Paul Shuman. Riemer and Thayer have, for the past three years, been involved with a fleet of 13 boats in an experimental tuna pair trawl fishery on the U.S. East Coast. This project has shown that certain fishing practices, such as controlling the depth of the trawl and using large mesh, can be employed to make this gear type extremely species and size selective. (*Fishing News International*, May 1996)

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